# EVALUATION OF INDUSTRIAL ARTS IN SECONDARY SCHOOLS OF ILLINOIS

BY

HOWARD ODIN REED

B. S., Bradley University, 1931

A. M., Northwestern University, 1938

Ed. M., University of Illinois, 1946

## AN ABSTRACT OF A THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF DOCTOR OF EDUCATION
IN THE GRADUATE COLLEGE OF THE
UNIVERSITY OF ILLINOIS, 1948

URBANA, ILLINOIS

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# EVALUATION OF INDUSTRIAL ARTS IN SECONDARY SCHOOLS OF ILLINOIS

## I. Problem

This study is an attempt to evaluate the physical facilities provided for instruction in industrial arts by fifty representative secondary public school systems in Illinois and to evaluate the objectives, methods and devices of the industrial-arts teachers in these school systems.

More specifically, the purposes of this study are:

1. To prepare a rating scale to be used in evaluating industrial-arts programs with respect to teacher objectives, methods and devices, and with respect to the physical facilities possessed by a given school for the operation of its industrial-arts program.

2. To try out the rating scale by using it to evaluate the industrial-arts programs in fifty representative secondary public school systems in Illinois.

3. To develop an evaluating procedure for industrial-arts programs which may be used by others to bring about an improvement in existing programs and to eliminate much of the guess work when a program is begun.

4. To determine the status of industrial arts in fifty representative public school systems of Illinois in grades seven through twelve with respect to the teachers' objectives and methods and devices and also with respect to the physical facilities of the schools.

## II. Methods

The rating scale which constituted the first part of this study was prepared by compiling from the industrial-arts

literature rather extensive lists of objectives, methods and devices, and physical facilities. These lists were formulated into check-lists which were mailed to one hundred eighty-five prospective jurors who had been nominated for this work by their state directors of industrial education. These jurors had indicated their willingness to help with the study before the check-lists were sent to them. One hundred twelve of the one hundred eighty-five check-lists were returned. Ninety-four of these were marked in a completely usable manner. (The jury consisted of thirty-one industrial-arts teachers, forty-four city directors of industrial arts, and thirty-seven college professors of industrial arts. They resided in thirty-six states and the District of Columbia. Their formal education is represented by fourteen doctors' degrees, sixty-two masters' degrees and thirty-four bachelors' degrees. Two jurors reported having no degrees. Twenty years represented the median educational experience in the field of industrial arts.) The jury responses were tabulated, percentages computed, and scale values assigned to each item. The items were arranged in rank order for the rating scale.

The second part of this study consisted of an examination of fifty public school systems in Illinois. These schools were selected with respect to senior high school enrollment and geographical location so that they would represent a typical cross-section of the schools in the state that offered industrial arts. Information as to the enrollment of the various high schools offering industrial arts was obtained from the 1946-47 reports submitted by the high school principals to the University of Illinois High School Visitor's Office at Urbana.

Data were collected from the fifty school systems by interviewing one hundred sixteen teachers with respect to their objectives and teaching methods and devices for industrial arts and by inspecting forty-three drawing rooms and one hundred six shops which were located in sixty-five different school buildings. The scale scores were obtained by totaling the various items in the three sections of the rating scale.

These scores were used for the purposes of evaluation and comparison.

## III. Conclusions

1. The median scale score for objectives and methods and devices for the teachers of Illinois included in this study who had masters' degrees was approximately fifteen per cent higher than the median scale score for the teachers who did not have masters' degrees. If it is assumed that one's securing a master's degree makes him a better industrial-arts teacher, it seems that the portions of the rating scale which deal with objectives and methods and devices tend to distinguish the better industrial-arts teachers from the poorer ones.

2. Some jurors suggested certain items which had been omitted from the original check-list. The omission of most of these items from the rating scale did not greatly affect the findings in the study because of their non-existence in most of the schools examined.

3. There seemed to be much agreement among the industrial-arts teachers with respect to their objectives and methods and devices in the northern, central, and southern sections of the state of Illinois as well as in the schools of various sizes. The schools with large enrollments tended to have more adequate physical facilities for both shops and drawing rooms than did the schools with small enrollments. Although the number of schools was too small to reveal a strong tendency, it appeared that the larger schools in the northern part of the state were best provided for with respect to physical facilities.

4. According to the jury responses, industrial-arts objectives for junior and senior high schools should be concerned with the fullest possible development of each individual student's character, social skills, health and safety, orderly performance, creativeness, self-discipline, versatility, demo-

cratic participation in group undertakings, and formation of judgments; as well as the development of the ability to draw and design, to use tools and operate machines skillfully, to appreciate and use industrial products wisely, to acquire a trade vocabulary, to develop an interest in modern industry, and to choose a vocation wisely. Many of these objectives seem to be compatible with those of general education. The per cent of the industrial-arts teachers interviewed for this study who stated that they attempt to attain each of the objectives compared favorably with the per cent of jurors accepting each of them. This seems to indicate that the group of jurors and the group of teachers were in close agreement on the matter of objectives for industrial-arts instruction.

5. According to the jury responses, the folowing methods and devices are recommended for attaining the generally accepted objectives for industrial-arts instruction: Audio-visual aids, shop work by each student, pupil personnel organization, individual instruction, project selection and planning, mass production of articles for civic agencies, visits to industries, teacher reports and discussion, exhibits of student activities, outside speakers, written reports by students, demonstrations, use of textbook, testing, and pamphlets, manuals, bulletins and catalogs. Other helpful methods and devices suggested are exhibit and display panels, models and demonstration devices, oral reports by the students, charts and diagrams, and comparison of price and quality of industrial products.

The per cent of the industrial-arts teachers interviewed for this study who stated that they regularly used each of the methods and devices does not compare favorably with the methods and devices recommended by the jury. This would seem to indicate that for attaining the objectives the jury tends to suggest ways and means which are somewhat different from those being used by most of the teachers of Illinois.

6. The responses of the jury indicated that such items as first aid cabinet, bulletin board, teacher's desk and chair, book case, clock, blackboard, comfortable temperature, adequate ventilation and lighting, display cabinet, class assembly facilities, drinking fountain, wash basin, toilet facilities, adequate floor space, adequate storage space for tools and supplies, acoustically treated ceiling, and outside entrance with double doors are needed in the physical plant outlay for industrial arts. An examination of the scale scores for both junior and senior high school industrial-arts shops and drawing rooms reveals that many of the schools inspected are completely deficient in many of these general physical facilities.

7. Over fifty per cent of the jury indicated a need for mechanical drawing, woodworking, metal working, and printing equipment for junior and senior high school industrial-arts. Over fifty per cent of the jury also indicated a need for equipment for electrical work and automotive work at the senior high school level. Mechanical drawing facilities were found in fewer than one third of the sixteen junior high schools which were inspected in this study. Over eighty per cent of these junior high schools were equipped with the common woodworking machines, while only twenty-five per cent were equipped with facilities for metal work. Fewer than fifteen per cent had printing equipment. Over ninety-four per cent of fifty-one senior high schools of Illinois which were inspected in this study had mechanical drawing and woodworking equipment, while only fifty-five per cent had some machine shop equipment, fewer than twenty-five per cent had some equipment for teaching sheetmetal and printing, and fewer than ten per cent had some equipment for teaching electrical work and automotive work.

On the whole this study seems to indicate that the industrial-arts teachers of Illinois have objectives which are generally accepted for industrial-arts instruction; however they do not use as many methods and devices to attain their

objectives as they should. This study also indicates that the physical facilities of many Illinois schools are non-existent or seriously inadequate. It is suggested that public-school teachers and administrators who are responsible for industrial-arts instruction in the secondary schools of Illinois attempt to provide and improve the physical facilities needed in their industrial-arts departments.

## VITA

Howard Odin Reed, son of Josie Anderson and Bertha (Sampson) Reed, was born February 22, 1906, in Jasper County, Illinois. He was graduated from the Newton Community High School, Newton, Illinois, in June, 1927. In June, 1931, he received the Bachelor of Science Degree in Industrial Education from Bradley University, Peoria, Illinois. In June, 1938, he received the Master of Arts Degree in Education from Northwestern University, Evanston, Illinois. In January, 1946, he received the Master of Education Degree from the University of Illinois. Since January, 1946, he has done additional graduate work at the University of Illinois.

He was employed as a junior high school teacher by the City Board of Education, Knoxville, Tennessee, for the school year of 1929-30. He was employed as a high school teacher by the Dundee Community High School Board of Education, Dundee, Illinois, for the school years of 1930-34. He was employed as a high school teacher by the Lockport Township High School Board of Education for the school years of 1934-42. He was employed as director of industrial education by the City Board of Education, Bloomington, Illinois, for the school years of 1942-44. He was employed as an assistant professor by the State of Illinois, Illinois State Normal University, Normal, Illinois, for the school years of 1944-48.

He is a member of Phi Delta Kappa, Kappa Delta Pi, Phi Kappa Phi, Phi Sigma Pi, Illinois Education Association, Illinois Industrial Education Association, American Vocational Association, American Association of University Professors, and life membership in the National Education Association.

Publications by him include the following:

*The Midget Wiggly Block Test for Mechanical Ability.*

Chicago: C. H. Stoelting Company, 1939. 6 p. and set of blocks.

*General Shop Metal Work.* (Co-author with A. W. Dragoo) Bloomington, Illinois: McKnight and McKnight, Revised, 1947. 102 p.

"The Midget Wiggly Block Test for Mechanical Ability," *Industrial Arts and Vocational Education,* 31:153-4, April 1941.

"Further Experiments with the Midget Wiggly Block Test," *Industrial Arts and Vocational Education,* 36:241-3, June, 1946.

"The General Library and the School Shop," *Industrial Arts and Vocational Education,* 37:9-10, January, 1948.